



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 1
5 Post Office Square, Suite 100
Boston, MA 02109-3912

CERTIFIED MAIL

February 14, 2019

Charles Lehrer, President
Photo Fabrication Engineering
500 Fortune Boulevard
Milford, MA 01757

Re: Information Request Pursuant to the Clean Air Act and the Comprehensive Environmental Response, Compensation and Liability Act

Response Required Within Thirty Days of Receipt

Dear Mr. Lehrer:

This letter regards Photo Fabrication Engineering, Inc. ("PFE") and its compliance with:

- (a) the **chemical inventory reporting requirements** of Sections 302, 311 and 312 of the Emergency Planning and Community Right-to-Know Act ("EPCRA"), 42 U.S.C. §§ 11002, 11021, and 11022;
- (b) the **chemical release prevention requirements** of Section 112(r) of the Clean Air Act ("CAA" or "Act"), 42 U.S.C. § 7412(r); and
- (c) the **chemical release reporting requirements** of Section 103 of the Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA"), 42 U.S.C. § 9603, and Section 302 of EPCRA, 42 U.S.C. § 11004.

The United States Environmental Protection Agency ("EPA") learned of a recent spill of two or three gallons of hydrofluoric acid at PFE's facility in Milford, Mass. According to news reports, the spill required an emergency response and sent a few workers to the hospital. When searching the Massachusetts EPCRA database, EPA could not find a chemical inventory form that mentioned the presence of hydrofluoric acid at the Facility.

Hydrofluoric acid is the aqueous solution of hydrogen fluoride. Hydrofluoric acid with a concentration of more than 50% percent of hydrogen fluoride in the solution may be subject to the risk management planning requirements of CAA Section 112(r)(7) and 40 C.F.R. Part 68, depending on the amount of acid present at the facility. Lesser concentrations are subject to the chemical accident prevention provisions of CAA Section 112(r)(1) (known as "the General Duty Clause"). All concentrations of the acid are subject to EPCRA and CERCLA reporting requirements, depending on whether threshold amounts are stored and/or released. Hydrofluoric acid is highly corrosive and can seriously poison people through inhalation, ingestion, or contact with skin.

Information Request

Section 114(a)(1) of the Clean Air Act, 42 U.S.C. § 7414(a)(1), authorizes EPA to require a company to submit such information as EPA may reasonably require to determine its compliance with the Clean Air Act. Section 104(e)(2), of CERCLA, 42 U.S.C. § 604(e)(2), authorizes EPA to obtain information from companies about releases or threatened releases of hazardous substances. Compliance with this Information Request for questions 1-8 is mandatory, and a response to questions 9-11 is requested but not mandated.

Failure to respond fully and truthfully, or to adequately justify any failure to respond to questions 1-8, **within thirty (30) days of receipt of this letter**, can result in an enforcement action by EPA pursuant to Section 113 of the Clean Air Act, 42 U.S.C. § 7413, and Section 104(e)(5) of CERCLA, 42 U.S.C. § 9604(e). Both statutes permit EPA to seek the imposition of penalties. This reporting requirement is not subject to Office of Management and Budget review under the Paperwork Reduction Act. Please be further advised that provision of false, fictitious, or fraudulent statements or representations may subject you to criminal penalties.

You may, if you desire, assert a business confidentiality claim covering part or all of the information requested, in the manner described by 40 C.F.R. § 2.203(b). You should read the above-cited regulations carefully before asserting a business confidentiality claim, as certain categories of information are not properly the subject of such a claim. If no such claim accompanies the information when it is received by EPA, the information may be made available to the public by EPA without further notice to you.

Please submit the above-referenced information in writing and by electronic mail to:

Mary Jane O'Donnell
Office of Environmental Stewardship (Mail Code OES 05-1)
U. S. Environmental Protection Agency, Region I
5 Post Office Square, Suite 100
Boston, Massachusetts 02109-3912
odonnell.maryjane@epa.gov

As part of your response, please complete the enclosed declaration found in the Information Request section of this letter (Attachment 1) and, following the instructions in Attachment 2, answer the questions in Attachment 3.

Compliance Assistance Resources

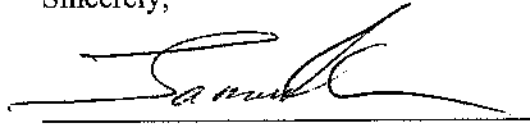
This letter also conveys some compliance assistance information to help you comply with environmental laws relating to the use of hydrofluoric acid at PFE. The following documents are enclosed in the Compliance Assistance section of this letter:

- (a) Hydrofluoric acid chemical data sheet from CAMEO Chemicals;
- (b) A fact sheet about the General Duty Clause;

- (c) A fact sheet about reporting requirements of the Emergency Planning and Community Right-to-Know Act; and
- (d) An information sheet for small businesses.

If you have any questions, please contact Mary Jane O'Donnell at (617) 918-1371.

Sincerely,



James Chow
Manager, Technical Enforcement Office
Office of Environmental Stewardship



Carol Tucker
Chief, Emergency Planning and Response Branch
Office of Site Remediation

Enclosures

INFORMATION REQUEST

ATTACHMENT 1

Instructions: Complete and Include With Your Response

DECLARATION

I declare under penalty of perjury that I am the

_____ of _____,
[Title] [Name of Facility]

that I am authorized to respond on behalf of

_____, and
[Name of Facility]

that the foregoing is a complete, true, and correct response.

Executed on _____
[Date]

[Signature]

[Type Name and Title]

**INFORMATION REQUEST
ATTACHMENT 2
INSTRUCTIONS AND DEFINITIONS**

Instructions

1. Please provide a separate narrative response to each and every question set forth in this Information Request.
2. Precede each answer with the number of the question to which it corresponds.
3. If information or documents not known or not available to you as of the date of submission of a response to this Information Request should later become known or available to you, you must supplement your response to EPA. Moreover, should you find, at any time after the submission of your response, that any portion of the submitted information is false or misrepresents the truth, you must notify EPA of this fact as soon as possible and provide EPA with a corrected response.
4. For each document produced in response to this Information Request, indicate on the document, or in some other reasonable manner, the number of the question to which it responds.
5. For any document that is responsive to a question set forth in this Information Request that is no longer available to you as of the date of submission of your response, provide the name and contact information for any person who prepared the document and/or had knowledge of its contents.
6. The information requested herein must be provided even though you may contend that it includes possible confidential information or trade secrets. You may, if you desire, assert a confidentiality claim covering part or all of the information requested, pursuant to 40 C.F.R. Section 2.203(b), by attaching to such information at the time it is submitted a cover sheet, stamped or typed legend, or other suitable form of notice employing language such as "trade secret," or "proprietary," or "company confidential." Information covered by such a claim will be disclosed by EPA only to the extent, and only by means, of the procedures set forth in the statute and regulation identified above. If no such claim accompanies the information when it is received by EPA, it may be made available to the public by EPA without further notice to you. You should read the above cited regulations carefully before asserting a business confidentiality claim, since certain categories of information are not properly the subject of such a claim.

Please note the burden of proof is on you to demonstrate that information claimed as confidential satisfies the criteria set forth in 40 C.F.R. § 2.208. If any portion of your response contains information which you claim as confidential, you must submit two copies of any such "confidential business information" in accordance with the following procedures:

1) The first copy of any document containing such “confidential business information” must be complete and contain all information. Additionally, each such page must be marked conspicuously to indicate that it is claimed as confidential.

2) The second copy of any document that is subject to a CBI claim must be redacted so that it contains only information that is not claimed as confidential.

Definitions

The following definitions shall apply to the following words as they appear in Attachment 3:

1. The term "you" or "your," shall include Photo Fabrication Engineering, Inc. and the addressee of this Information Request.
2. The term "person" shall have the same definition as in Section 302(e) of the CAA, 42 U.S.C. § 7602.
3. The term "document" or "documentation" includes any object that contains, records, stores or presents information, whether in paper, electronic or any other form.
4. The term "identify" means, with respect to a *natural person*, to set forth the person's name, present or last known business address and business telephone number, present or last known home address and home telephone number, and present or last known job title, position or business.
5. The term "identify" means, with respect to a *corporation, partnership, business trust or other association or business entity* (including a sole proprietorship), to set forth its full name, address, and legal form (e.g., corporation, partnership, etc.).
6. The term "identify" means, with respect to a document, to provide its customary business description, its date, its number, if any (invoice or purchase order number), the identity of the author, addressor, addressee and/or recipient, and the substance or the subject matter.
7. The term "facility" or "Facility" refers to Photo Fabrication Engineering, Inc. at 500 Fortune Boulevard, Milford, MA.
8. The terms "and" and "or" shall be construed either disjunctively or conjunctively as necessary to bring within the scope of this Information Request any information which might otherwise be construed to be outside its scope.
9. All terms not defined herein shall have their ordinary meaning, unless such terms are defined in the Clean Air Act, CERCLA, or 40 C.F.R. Parts 68 and 302, in which case the statutory or regulatory definitions shall apply.
10. A requested document, item or information shall be deemed to be in your "possession, custody or control" if you know where it is and can obtain access to it, even if it is not presently in your possession.

**INFORMATION REQUEST
ATTACHMENT 3**

Questions

Please provide a separate response to each question in this Information Request. You may fill in the questions by hand, answer them in a separate document, or e-mail Mary Jane O'Donnell at odonnell.maryjane@epa.gov to obtain a Word version of this information request so that you can more easily type in your responses. Precede each answer with the number of the question to which it corresponds.

Questions about Who Owns and Operates Facility

1. Identify the corporate entity that *owns* the Photo Fabrication Engineering, Inc. ("PFE") facility located at 500 Fortune Boulevard in Milford, Mass. (the "Facility").

2. Identify the corporate entity that *operates* the Facility.

Questions about Hydrofluoric Acid Inventory

3. What is the concentration of hydrofluoric acid stored or used at the Facility?

4. Please provide the Safety Data Sheet for each type of hydrofluoric acid stored or used at the Facility.
5. For each type of hydrofluoric acid stored or used at the Facility (by acid concentration), please fill in the following chart regarding inventory. For example, if the Facility uses two types of hydrofluoric acid solution at the Facility, one at 70% concentration and one at 49%, you should provide two answers for each type of acid per time period referenced in the chart.

Time Period	Inventory of Hydrofluoric Acid (pounds) at the Facility
On January 14, 2019 (day of spill/release)	
Typical daily amount in calendar year 2017	

Maximum amount at any one time in calendar year 2017	
Typical daily amount in calendar year 2018	
Maximum amount at any one time in calendar year 2018	

6. Describe where and how the hydrofluoric acid is stored at the Facility. Also, provide photos of the storage area(s). If storage methods have changed since 2018, please describe the changes.

Questions about Identification of Hazards at PFE

Information about the Requirement for Hazard Identification: Hydrogen fluoride/hydrofluoric acid is an extremely hazardous substance listed in Section 112(r)(3) of the Clean Air Act, 42 U.S.C. § 7412(r)(3), and 40 C.F.R. § 68.130. Owners and operators of stationary sources producing, processing, handling, or storing substances listed pursuant to Section 112(r)(3) of the Clean Air Act, or any other extremely hazardous substance, have a general duty under Section 112(r)(1), 42 U.S.C. § 7412(r)(1), (the General Duty Clause) to:

- (1) identify hazards which may result from accidental releases of such substances using appropriate hazard assessment techniques;
- (2) design and maintain a safe facility taking such steps as are necessary to prevent releases; and
- (3) minimize the consequences of accidental releases that do occur.

To satisfy the first duty listed above, a facility must conduct a process hazard review if the facility has (a) less than 1,000 pounds of hydrofluoric acid solution with an acid concentration of 50% or greater ("HF ≥ 50%"), (b) more than 1,000 pounds of HF ≥ 50% where the distance to a toxic endpoint for a worst-case release is less than the distance to any public receptor, or (c) hydrofluoric acid at lower than 50% concentration ("HF < 50%"). A guidance that further explains expectations for the process hazard review may be found at <https://www.epa.gov/sites/production/files/documents/gendutyclause-rpt.pdf>.

Facilities having more than 1,000 pounds of HF $\geq 50\%$ ¹ in a process² must comply with the more comprehensive risk management planning regulations found at 40 C.F.R. Part 68. Those regulations include, among other obligations, the requirement to conduct a process hazard review/analysis in accordance with 40 C.F.R. § 68.50 or 68.67.

7. Has a process hazard review/analysis ("Process Hazard Review") been performed for the Facility's storage and use of hydrofluoric acid? Yes ☐ No ☐

If yes, specify the type of hydrofluoric acid, type of review, the year of the review, and who conducted it in the table below.

Type of HF	Type of Process Hazard Review (Specify industry checklist, What-If Analysis, HAZOP Analysis, or other)	Year of Process Hazard Review	Who Conducted Hazard Review (Specify outside team, your company, insurance company, or other)

Questions about the Hydrofluoric Acid Release

8. Provide the following information about the hydrofluoric acid release that occurred on or about January 14, 2019 at the Facility ("the Release"):

- a. How much hydrofluoric acid was released?

- b. How was the quantity of the Release determined?

- c. Who made the determination about the amount of the Release?

¹ For hydrofluoric acid, the concentration of the acid is relevant to calculating the threshold quantity in that one considers only the weight of the regulated substance present in the acid towards meeting the 1,000 lb. threshold, not the entire weight of the solution.

² Drums stored near each other such that their contents could be involved in a single chemical release (for example, released together in a fire) are in a single process. See definition of "process" in 40 C.F.R. 68.3.

d. How long did the Release last (specify the dates and times)?

e. This set of questions relates to personnel who noticed the Release and took charge of addressing it:

i. Who discovered the Release and at what time? Provide name, title, organization, and time of discovery:

ii. Did the person(s) listed in response to question (i), above, notify management about the Release? If so, whom, and at what time?

iii. Who, if anyone, was in charge of notifying local, state, and federal response authorities about the Release?

iv. Did anyone from the Facility notify local, state, or federal, authorities about the Release? Yes ___ No ___

If so, which authorities, and on what day and time?

If not, who notified the authorities of the Release?

- f. Did the release go off-site? Yes ___ No ___ If so, please describe.

- g. Provide information about any follow-up EPCRA or CERCLA reporting that you conducted pursuant to 40 C.F.R. Parts 302 and 355, including dates that such reports were made and copies of such reports, if available:

Questions about Chemical Inventory Reporting

9. *EPCRA Section 302 Compliance:* Have you helped state and local emergency responders and planners prepare for a chemical release by notifying the State Emergency Response Commission (SERC), Local Emergency Planning Committee (LEPC), or other authorities of the presence of any extremely hazardous substances, including hydrofluoric acid, in compliance with EPCRA Section 302, 42 U.S.C. § 1102?

Yes ___ No ___ If so, when? _____

10. *EPCRA Section 312 Compliance:* If you had more than 100 pounds of hydrofluoric acid³ in 2017 and 2018, did you file annual EPCRA Tier II inventory forms that include the chemical with the local fire department, LEPC, and SERC in compliance with EPCRA Section 312, 42 U.S.C. § 11022, and 40 C.F.R. Part 370? [Note that EPA could not find mention of hydrofluoric acid in your 2018 Tier II report.]

Yes ___ No ___ Not Applicable because the Facility never stored more than 100 pounds of hydrofluoric acid _____

If you answered "yes," when? _____. Please provide a copy.

11. *EPCRA Section 311 Compliance:*

- a. On what date did you first start storing 100 pounds of hydrofluoric acid at the Facility, if ever (see footnote 3 below)?

³ Adjust this amount for the concentration of the solution (i.e., if you have 400 pounds of HCL 50%, just count 200 pounds toward the 100 pound threshold).

-
- b. Did you file a Tier I/II chemical inventory form or a Safety Data Sheet “SDS”) with the local fire department, LEPC, and SERC within three months of the date referenced in response to Question 11(a) above, in compliance with EPCRA Section 311, 42 U.S.C. § 11021, and 40 C.F.R. Part 370, Subpart C?

Yes ___ No ___ Not Applicable because the Facility never stored more than 100 pounds of hydrofluoric acid _____

If you answered “no,” when, if ever, did you file the Tier I/II form or SDS?

_____.

Please provide a copy of any Tier I/II form SDS filed with the local fire department, LEPC and SERC to comply with EPCRA Section 311.

COMPLIANCE ASSISTANCE RESOURCES



CAMEO Chemicals

[Print](#)

Chemical Datasheet

HYDROFLUORIC ACID, SOLUTION



Chemical Identifiers

CAS Number	UN/NA Number	DOT Hazard Label	USCG CHRIS Code
7664-39-3	1790	Corrosive Poison	HFA

NIOSH Pocket Guide
Hydrogen fluoride

International Chem Safety Card
HYDROGEN FLUORIDE

NFPA 704

Diamond	Hazard	Value	Description
<div>0</div> <div>4 1</div>	Health	4	Can be lethal.
	Flammability	0	Will not burn under typical fire conditions.
	Instability	1	Normally stable but can become unstable at elevated temperatures and pressures.
	Special		

(NFPA, 2010)

General Description

A colorless fuming mobile aqueous solution with a pungent odor. Corrosive to metals and tissue. Highly toxic by ingestion and inhalation. Exposure to fumes or very short contact with liquid may cause severe painful burns; penetrates skin to cause deep-seated ulceration that may lead to gangrene.

Hazards

Reactivity Alerts

- Water-Reactive
- Air-Reactive

Air & Water Reactions

Fumes in air. Fumes are highly irritating, corrosive, and poisonous. Generates much heat on dissolution [Merck, 11th ed., 1989]. Heat can cause spattering, fuming, etc.

Fire Hazard

Excerpt from ERG Guide 157 [Substances - Toxic and/or Corrosive (Non-Combustible / Water-Sensitive)]:

Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes. For UN1796, UN1826, UN2031 at high concentrations and for UN2032, these may act as oxidizers, also consult ERG Guide 140. Vapors may accumulate in confined areas (basement, tanks, hopper/tank cars, etc.). Substance may react with water (some violently), releasing corrosive and/or toxic gases and runoff. Contact with metals may evolve flammable hydrogen gas. Containers may explode when heated or if contaminated with water. (ERG, 2016)

Health Hazard

Excerpt from ERG Guide 157 [Substances - Toxic and/or Corrosive (Non-Combustible / Water-Sensitive)]:

TOXIC; inhalation, ingestion or contact (skin, eyes) with vapors, dusts or substance may cause severe injury, burns or death. Reaction with water or moist air may release toxic, corrosive or flammable gases. Reaction with water may generate much heat that will increase the concentration of fumes in the air. Fire will produce irritating, corrosive and/or toxic gases. Runoff from fire control or dilution water may be corrosive and/or toxic and cause pollution. (ERG, 2016)

Reactivity Profile

HYDROFLUORIC ACID attacks glass and any other silica containing material. May react with common metals (iron, steel) to generate flammable hydrogen gas if diluted below 65%. Reacts exothermically with chemical bases (examples: amines, amides, inorganic hydroxides). Can initiate polymerization in certain alkenes. Reacts with cyanide salts and compounds to release gaseous hydrogen cyanide. May generate flammable and/or toxic gases with dithiocarbamates, isocyanates, mercaptans, nitrides, nitriles, sulfides. Additional gas-generating reactions may occur with sulfites, nitrites, thiosulfates (to give H₂S and SO₃), dithionites (SO₂), and carbonates. Can catalyze (increase the rate of) chemical reactions. Reacts explosively with cyanogen fluoride, methanesulfonic acid or glycerol mixed with nitric acid. Reacts violently with arsenic trioxide, phosphorus pentachloride, acetic anhydride, alkali metals, ammonium hydroxide, chlorosulfonic acid, ethylenediamine, fluorine, potassium permanganate, oleum, propylene oxide, vinyl acetate, mercury(II) oxide. Emits highly corrosive fumes of hydrogen fluoride gas when heated [Sax, 9th ed., 1996, p. 1839]. Contact with many silicon compounds and metal silicides causes violent evolution of gaseous silicon tetrafluoride [Mellor, 1956, Vol. 2, suppl. 1, p. 121].

Mixing in equal molar portions with any of the following substances in a closed container caused the temperature and pressure to increase: acetic anhydride, 2-aminoethanol, chlorosulfonic acid, aqueous ammonia (48.7%), ethylenediamine, ethyleneimine, oleum, aqueous sulfuric acid (48.7%), aqueous sodium hydroxide (48.7%), propylene oxide, vinyl acetate [NFPA 1991].

Belongs to the Following Reactive Group(s)

- Fluoride Salts, Soluble
- Acids, Weak
- Water and Aqueous Solutions

Potentially Incompatible Absorbents

Use caution: Liquids with this reactive group classification have been known to react with the absorbents listed below.

- Mineral-Based & Clay-Based Absorbents
- Sand
- Dirt/Earth

Response Recommendations

Isolation and Evacuation

Excerpt from ERG Guide 157 [Substances - Toxic and/or Corrosive (Non-Combustible / Water-Sensitive)]:

As an immediate precautionary measure, isolate spill or leak area in all directions for at least 50 meters (150 feet) for liquids and at least 25 meters (75 feet) for solids.

SPILL: Increase, in the downwind direction, as necessary, the isolation distance shown above.

FIRE: If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions. (ERG, 2016)

Firefighting

Excerpt from ERG Guide 157 [Substances - Toxic and/or Corrosive (Non-Combustible / Water-Sensitive)]:

Note: Some foams will react with the material and release corrosive/toxic gases.

SMALL FIRE: CO₂ (except for Cyanides), dry chemical, dry sand, alcohol-resistant foam.

LARGE FIRE: Water spray, fog or alcohol-resistant foam. Move containers from fire area if you can do it without risk. Use water spray or fog; do not use straight streams. Dike fire-control water for later disposal; do not scatter the material.

FIRE INVOLVING TANKS OR CAR/TRAILER LOADS: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Do not get water inside containers. Cool containers with flooding quantities of water until well after fire is out. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. ALWAYS stay away from tanks engulfed in fire. (ERG, 2016)

Non-Fire Response

Excerpt from ERG Guide 157 [Substances - Toxic and/or Corrosive (Non-Combustible / Water-Sensitive)]:

ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). All equipment used when handling the product must be grounded. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Stop leak if you can do it without risk. A vapor-suppressing foam may be used to reduce vapors. **DO NOT GET WATER INSIDE CONTAINERS.** Use water spray to reduce vapors or divert vapor cloud drift. Avoid allowing water runoff to contact spilled material. Prevent entry into waterways, sewers, basements or confined areas.

SMALL SPILL: Cover with DRY earth, DRY sand or other non-combustible material followed with plastic sheet to minimize spreading or contact with rain. Use clean, non-sparking tools to collect material and place it into loosely covered plastic containers for later disposal. (ERG, 2016)

Protective Clothing

Skin: If chemical is in liquid form, wear appropriate personal protective clothing to prevent skin contact.

Eyes: If chemical is in liquid form, wear appropriate eye protection to prevent eye contact.

Wash skin: If the chemical is in liquid form, the worker should immediately wash the skin when it becomes contaminated.

Remove: If chemical is in liquid form, work clothing that becomes wet or significantly contaminated should be removed and replaced.

Change: No recommendation is made specifying the need for the worker to change clothing after the work shift.

Provide: Eyewash fountains should be provided (when chemical is in liquid form) in areas where there is any possibility that workers could be exposed to the substance; this is irrespective of the recommendation involving the wearing of eye protection. Facilities for quickly drenching the body should be provided (when chemical is in liquid form) within the immediate work area for emergency use where there is a possibility of exposure. [Note: It is intended that these facilities provide a sufficient quantity or flow of water to quickly remove the substance from any body areas likely to be exposed. The actual determination of what constitutes an adequate quick drench facility depends on the specific circumstances. In certain instances, a deluge shower should be readily available, whereas in others, the availability of water from a sink or hose could be considered adequate.] (NIOSH, 2016)

DuPont Tychem® Suit Fabrics

Normalized Breakthrough Times (in Minutes)

Chemical	CAS Number	State	QS	QC	SL	C3	TF	TP	BR	RC	TK	RF
Hydrofluoric acid (10%)	7664-39-3	Liquid										
Hydrofluoric acid (48-51%)	7664-39-3	Liquid	400	400	>480	180	>480	15	>480	>480	>480	>480
Hydrofluoric acid (60%)	7664-39-3	Liquid					52					
Hydrofluoric acid (70%)	7664-39-3	Liquid			143	126	35		>480	>480	>480	>480
Hydrogen fluoride (>95%, gas)	7664-39-3	Vapor		imm.	35	170	imm.	imm.	135	135	>480	>480

> indicates greater than.

"imm." indicates immediate; having a normalized breakthrough time of 10 minutes or less.

A blank cell indicates the fabric has not been tested. The fabric may or may not offer barrier.

Special Warnings from DuPont

1. Serged and bound seams are degraded by some hazardous liquid chemicals, such as strong acids, and should not be worn when these chemicals are present.
2. CAUTION: This information is based upon technical data that DuPont believes to be reliable. It is subject to revision as additional knowledge and experience are gained. DuPont makes no guarantee of results and assumes no obligation or liability...

(DuPont, 2018)

First Aid

Eye: If this chemical in liquid form or in solution contacts the eyes, immediately wash the eyes with large amounts of water, occasionally lifting the lower and upper lids. Get medical attention immediately. Contact lenses should not be worn when working with this chemical.

Skin: If this chemical in solution or in liquid form contacts the skin, immediately flush the contaminated skin with water. If this chemical penetrates the clothing, immediately remove the clothing and flush the skin with water. Get medical attention promptly.

Breathing: If a person breathes large amounts of this chemical, move the exposed person to fresh air at once. If breathing has stopped, perform mouth-to-mouth resuscitation. Keep the affected person warm and at rest. Get medical attention as soon as possible.

Swallow: If this chemical in solution has been swallowed, get medical attention immediately. (NIOSH, 2016)

Physical Properties

Chemical Formula: HF (aqueous)

Flash Point: data unavailable

Lower Explosive Limit (LEL): data unavailable

Upper Explosive Limit (UEL): data unavailable

Autoignition Temperature: Not flammable (USCG, 1999)

Melting Point: -118 ° F (NIOSH, 2016)

Vapor Pressure: 783 mm Hg (NIOSH, 2016)

Vapor Density (Relative to Air): data unavailable

Specific Gravity: data unavailable

Boiling Point: 152 ° F at 760 mm Hg (USCG, 1999)

Molecular Weight: 20 (NIOSH, 2016)

Water Solubility: Miscible (NIOSH, 2016)

Ionization Potential: 15.98 eV (NIOSH, 2016)

IDLH: 30 ppm (NIOSH, 2016)

AEGLs (Acute Exposure Guideline Levels)

Final AEGLs for Hydrogen fluoride (7664-39-3)

Exposure Period	AEGL-1	AEGL-2	AEGL-3
10 minutes	1 ppm	95 ppm	170 ppm
30 minutes	1 ppm	34 ppm	62 ppm
60 minutes	1 ppm	24 ppm	44 ppm
4 hours	1 ppm	12 ppm	22 ppm
8 hours	1 ppm	12 ppm	22 ppm

(NAC/NRC, 2017)

ERPGs (Emergency Response Planning Guidelines)

Chemical	ERPG-1	ERPG-2	ERPG-3
Hydrogen Fluoride (7664-39-3) **	2 ppm ⚡	20 ppm	50 ppm

** Addendum published in 1999 with new 10-minute values (ERPG-1: 2 ppm; ERPG-2: 50 ppm; ERPG-3: 170 ppm).

⚡ indicates that odor should be detectable near ERPG-1.

(AIHA, 2016)

PACs (Protective Action Criteria)

Chemical	PAC-1	PAC-2	PAC-3
Hydrogen fluoride; (Hydrofluoric acid) (7664-39-3)	1 ppm	24 ppm	44 ppm

(DOE, 2016)

Regulatory Information

EPA Consolidated List of Lists

Regulatory Name	CAS Number/ 313 Category Code	EPCRA 302 EHS TPQ	EPCRA 304 EHS RQ	CERCLA RQ	EPCRA 313 TRI	RCRA Code	CAA 112(r) RMP TQ
Hydrofluoric acid	7664-39-3	100 pounds	100 pounds	100 pounds	X	U134	
Hydrofluoric acid (conc. 50% or greater)	7664-39-3	100 pounds	100 pounds	100 pounds	X	U134	1000 pounds
Hydrogen fluoride	7664-39-3	100 pounds	100 pounds	100 pounds	313	U134	
Hydrogen fluoride (anhydrous)	7664-39-3	100 pounds	100 pounds	100 pounds	X	U134	1000 pounds

"X" indicates that this is a second name for an EPCRA section 313 chemical already included on this consolidated list. May also indicate that the same chemical with the same CAS number appears on another list with a different chemical name.

(EPA List of Lists, 2015)

DHS Chemical Facility Anti-Terrorism Standards (CFATS)

Chemical of Interest	CAS Number	RELEASE			THEFT			SABOTAGE		
		Min Conc	STQ	Security Issue	Min Conc	STQ	Security Issue	Min Conc	STQ	Security Issue
	7664-39-3	50.00 %	1000 pounds	toxic						

Chemical of Interest	CAS Number	RELEASE			THEFT			SABOTAGE		
		Min Conc	STQ	Security Issue	Min Conc	STQ	Security Issue	Min Conc	STQ	Security Issue
Hydrofluoric acid (conc. 50% or greater)										
Hydrogen fluoride (anhydrous)	7664-39-3	1.00 %	1000 pounds	toxic	42.53 %	45 pounds	WME			

WME = weapons of mass effect.

(DHS, 2007)

OSHA Process Safety Management (PSM) Standard List

Chemical Name	CAS Number	Threshold Quantity (TQ)
Hydrofluoric Acid, Anhydrous	7664-39-3	1000 pounds
Hydrogen Fluoride	7664-39-3	1000 pounds

(OSHA, 2011)

Alternate Chemical Names

- ALSURF 45
- ANTISAL 2B
- AQUEOUS HYDROGEN FLUORIDE (I.E., HYDROFLUORIC ACID)
- FLUORHYDRIC ACID
- FLUORIC ACID
- FLUORINE HYDRIDE (FH)
- FLUORINE MONOHYDRIDE
- HF-A
- HYDROFLUORIC ACID
- HYDROFLUORIC ACID (CONC. 50% OR GREATER)
- HYDROFLUORIC ACID, SOLUTION
- HYDROGEN FLUORIDE (HF)
- HYDROGEN FLUORIDE (HYDROFLUORIC ACID)
- HYDROGEN MONOFLUORIDE



CAMEO Chemicals

[Print](#)

Chemical Datasheet

HYDROFLUORIC ACID, SOLUTION



Chemical Identifiers

CAS Number	UN/NA Number	DOT Hazard Label	USCG CHRIS Code
7664-39-3	1790	Corrosive Poison	HFA

NIOSH Pocket Guide
Hydrogen fluoride

International Chem Safety Card
HYDROGEN FLUORIDE

NFPA 704

Diamond	Hazard	Value	Description
0 4 1	Health	4	Can be lethal.
	Flammability	0	Will not burn under typical fire conditions.
	Instability	1	Normally stable but can become unstable at elevated temperatures and pressures.
	Special		

(NFPA, 2010)

General Description

A colorless fuming mobile aqueous solution with a pungent odor. Corrosive to metals and tissue. Highly toxic by ingestion and inhalation. Exposure to fumes or very short contact with liquid may cause severe painful burns; penetrates skin to cause deep-seated ulceration that may lead to gangrene.

Hazards

Reactivity Alerts

- Water-Reactive
- Air-Reactive

Air & Water Reactions

Fumes in air. Fumes are highly irritating, corrosive, and poisonous. Generates much heat on dissolution [Merck, 11th ed., 1989]. Heat can cause spattering, fuming, etc.

Fire Hazard

Excerpt from ERG Guide 157 [Substances - Toxic and/or Corrosive (Non-Combustible / Water-Sensitive)]:

Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes. For UN1796, UN1826, UN2031 at high concentrations and for UN2032, these may act as oxidizers, also consult ERG Guide 140. Vapors may accumulate in confined areas (basement, tanks, hopper/tank cars, etc.). Substance may react with water (some violently), releasing corrosive and/or toxic gases and runoff. Contact with metals may evolve flammable hydrogen gas. Containers may explode when heated or if contaminated with water. (ERG, 2016)

Health Hazard

Excerpt from ERG Guide 157 [Substances - Toxic and/or Corrosive (Non-Combustible / Water-Sensitive)]:

TOXIC; inhalation, ingestion or contact (skin, eyes) with vapors, dusts or substance may cause severe injury, burns or death. Reaction with water or moist air may release toxic, corrosive or flammable gases. Reaction with water may generate much heat that will increase the concentration of fumes in the air. Fire will produce irritating, corrosive and/or toxic gases. Runoff from fire control or dilution water may be corrosive and/or toxic and cause pollution. (ERG, 2016)

Reactivity Profile

HYDROFLUORIC ACID attacks glass and any other silica containing material. May react with common metals (iron, steel) to generate flammable hydrogen gas if diluted below 65%. Reacts exothermically with chemical bases (examples: amines, amides, inorganic hydroxides). Can initiate polymerization in certain alkenes. Reacts with cyanide salts and compounds to release gaseous hydrogen cyanide. May generate flammable and/or toxic gases with dithiocarbamates, isocyanates, mercaptans, nitrides, nitriles, sulfides. Additional gas-generating reactions may occur with sulfites, nitrites, thiosulfates (to give H₂S and SO₃), dithionites (SO₂), and carbonates. Can catalyze (increase the rate of) chemical reactions. Reacts explosively with cyanogen fluoride, methanesulfonic acid or glycerol mixed with nitric acid. Reacts violently with arsenic trioxide, phosphorus pentachloride, acetic anhydride, alkali metals, ammonium hydroxide, chlorosulfonic acid, ethylenediamine, fluorine, potassium permanganate, oleum, propylene oxide, vinyl acetate, mercury(II) oxide. Emits highly corrosive fumes of hydrogen fluoride gas when heated [Sax, 9th ed., 1996, p. 1839]. Contact with many silicon compounds and metal silicides causes violent evolution of gaseous silicon tetrafluoride [Mellor, 1956, Vol. 2, suppl. 1, p. 121].

Mixing in equal molar portions with any of the following substances in a closed container caused the temperature and pressure to increase: acetic anhydride, 2-aminoethanol, chlorosulfonic acid, aqueous ammonia (48.7%), ethylenediamine, ethyleneimine, oleum, aqueous sulfuric acid (48.7%), aqueous sodium hydroxide (48.7%), propylene oxide, vinyl acetate [NFPA 1991].

Belongs to the Following Reactive Group(s)

- Fluoride Salts, Soluble
- Acids, Weak
- Water and Aqueous Solutions

Potentially Incompatible Absorbents

Use caution: Liquids with this reactive group classification have been known to react with the absorbents listed below.

- Mineral-Based & Clay-Based Absorbents
- Sand
- Dirt/Earth

Response Recommendations

Isolation and Evacuation

Excerpt from ERG Guide 157 [Substances - Toxic and/or Corrosive (Non-Combustible / Water-Sensitive)]:

As an immediate precautionary measure, isolate spill or leak area in all directions for at least 50 meters (150 feet) for liquids and at least 25 meters (75 feet) for solids.

SPILL: Increase, in the downwind direction, as necessary, the isolation distance shown above.

FIRE: If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions. (ERG, 2016)

Firefighting

Excerpt from ERG Guide 157 [Substances - Toxic and/or Corrosive (Non-Combustible / Water-Sensitive)]:

Note: Some foams will react with the material and release corrosive/toxic gases.

SMALL FIRE: CO₂ (except for Cyanides), dry chemical, dry sand, alcohol-resistant foam.

LARGE FIRE: Water spray, fog or alcohol-resistant foam. Move containers from fire area if you can do it without risk. Use water spray or fog; do not use straight streams. Dike fire-control water for later disposal; do not scatter the material.

FIRE INVOLVING TANKS OR CAR/TRAILER LOADS: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Do not get water inside containers. Cool containers with flooding quantities of water until well after fire is out. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. ALWAYS stay away from tanks engulfed in fire. (ERG, 2016)

Non-Fire Response

Excerpt from ERG Guide 157 [Substances - Toxic and/or Corrosive (Non-Combustible / Water-Sensitive)]:

ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). All equipment used when handling the product must be grounded. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Stop leak if you can do it without risk. A vapor-suppressing foam may be used to reduce vapors. DO NOT GET WATER INSIDE CONTAINERS. Use water spray to reduce vapors or divert vapor cloud drift. Avoid allowing water runoff to contact spilled material. Prevent entry into waterways, sewers, basements or confined areas.

SMALL SPILL: Cover with DRY earth, DRY sand or other non-combustible material followed with plastic sheet to minimize spreading or contact with rain. Use clean, non-sparking tools to collect material and place it into loosely covered plastic containers for later disposal. (ERG, 2016)

Protective Clothing

Skin: If chemical is in liquid form, wear appropriate personal protective clothing to prevent skin contact.

Eyes: If chemical is in liquid form, wear appropriate eye protection to prevent eye contact.

Wash skin: If the chemical is in liquid form, the worker should immediately wash the skin when it becomes contaminated.

Remove: If chemical is in liquid form, work clothing that becomes wet or significantly contaminated should be removed and replaced.

Change: No recommendation is made specifying the need for the worker to change clothing after the work shift.

Provide: Eyewash fountains should be provided (when chemical is in liquid form) in areas where there is any possibility that workers could be exposed to the substance; this is irrespective of the recommendation involving the wearing of eye protection. Facilities for quickly drenching the body should be provided (when chemical is in liquid form) within the immediate work area for emergency use where there is a possibility of exposure. [Note: It is intended that these facilities provide a sufficient quantity or flow of water to quickly remove the substance from any body areas likely to be exposed. The actual determination of what constitutes an adequate quick drench facility depends on the specific circumstances. In certain instances, a deluge shower should be readily available, whereas in others, the availability of water from a sink or hose could be considered adequate.] (NIOSH, 2016)

DuPont Tychem® Suit Fabrics

Normalized Breakthrough Times (in Minutes)

Chemical	CAS Number	State	QS	QC	SL	C3	TF	TP	BR	RC	TK	RF
Hydrofluoric acid (10%)	7664-39-3	Liquid										
Hydrofluoric acid (48-51%)	7664-39-3	Liquid	400	400	>480	180	>480	15	>480	>480	>480	>480
Hydrofluoric acid (60%)	7664-39-3	Liquid					52					
Hydrofluoric acid (70%)	7664-39-3	Liquid			143	126	35		>480	>480	>480	>480
Hydrogen fluoride (>95%, gas)	7664-39-3	Vapor		imm.	35	170	imm.	imm.	135	135	>480	>480

> indicates greater than.

"imm." indicates immediate; having a normalized breakthrough time of 10 minutes or less.

A blank cell indicates the fabric has not been tested. The fabric may or may not offer barrier.

Special Warnings from DuPont

1. Serged and bound seams are degraded by some hazardous liquid chemicals, such as strong acids, and should not be worn when these chemicals are present.
2. CAUTION: This information is based upon technical data that DuPont believes to be reliable. It is subject to revision as additional knowledge and experience are gained. DuPont makes no guarantee of results and assumes no obligation or liability...

(DuPont, 2018)

First Aid

Eye: If this chemical in liquid form or in solution contacts the eyes, immediately wash the eyes with large amounts of water, occasionally lifting the lower and upper lids. Get medical attention immediately. Contact lenses should not be worn when working with this chemical.

Skin: If this chemical in solution or in liquid form contacts the skin, immediately flush the contaminated skin with water. If this chemical penetrates the clothing, immediately remove the clothing and flush the skin with water. Get medical attention promptly.

Breathing: If a person breathes large amounts of this chemical, move the exposed person to fresh air at once. If breathing has stopped, perform mouth-to-mouth resuscitation. Keep the affected person warm and at rest. Get medical attention as soon as possible.

Swallow: If this chemical in solution has been swallowed, get medical attention immediately. (NIOSH, 2016)

Physical Properties

Chemical Formula: HF (aqueous)

Flash Point: data unavailable

Lower Explosive Limit (LEL): data unavailable

Upper Explosive Limit (UEL): data unavailable

Autoignition Temperature: Not flammable (USCG, 1999)

Melting Point: -118 ° F (NIOSH, 2016)

Vapor Pressure: 783 mm Hg (NIOSH, 2016)

Vapor Density (Relative to Air): data unavailable

Specific Gravity: data unavailable

Boiling Point: 152 ° F at 760 mm Hg (USCG, 1999)

Molecular Weight: 20 (NIOSH, 2016)

Water Solubility: Miscible (NIOSH, 2016)

Ionization Potential: 15.98 eV (NIOSH, 2016)

IDLH: 30 ppm (NIOSH, 2016)

AEGLs (Acute Exposure Guideline Levels)

Final AEGLs for Hydrogen fluoride (7664-39-3)

Exposure Period	AEGL-1	AEGL-2	AEGL-3
10 minutes	1 ppm	95 ppm	170 ppm
30 minutes	1 ppm	34 ppm	62 ppm
60 minutes	1 ppm	24 ppm	44 ppm
4 hours	1 ppm	12 ppm	22 ppm
8 hours	1 ppm	12 ppm	22 ppm

(NAC/NRC, 2017)

ERPGs (Emergency Response Planning Guidelines)

Chemical	ERPG-1	ERPG-2	ERPG-3
Hydrogen Fluoride (7664-39-3) **	2 ppm ☼	20 ppm	50 ppm

** Addendum published in 1999 with new 10-minute values (ERPG-1: 2 ppm; ERPG-2: 50 ppm; ERPG-3: 170 ppm).

☼ indicates that odor should be detectable near ERPG-1.

(AIHA, 2016)

PACs (Protective Action Criteria)

Chemical	PAC-1	PAC-2	PAC-3
Hydrogen fluoride; (Hydrofluoric acid) (7664-39-3)	1 ppm	24 ppm	44 ppm

(DOE, 2016)

Regulatory Information

EPA Consolidated List of Lists

Regulatory Name	CAS Number/ 313 Category Code	EPCRA 302 EHS TPQ	EPCRA 304 EHS RQ	CERCLA RQ	EPCRA 313 TRI	RCRA Code	CAA 112(r) RMP TQ
Hydrofluoric acid	7664-39-3	100 pounds	100 pounds	100 pounds	X	U134	
Hydrofluoric acid (conc. 50% or greater)	7664-39-3	100 pounds	100 pounds	100 pounds	X	U134	1000 pounds
Hydrogen fluoride	7664-39-3	100 pounds	100 pounds	100 pounds	313	U134	
Hydrogen fluoride (anhydrous)	7664-39-3	100 pounds	100 pounds	100 pounds	X	U134	1000 pounds

"X" indicates that this is a second name for an EPCRA section 313 chemical already included on this consolidated list. May also indicate that the same chemical with the same CAS number appears on another list with a different chemical name.

(EPA List of Lists, 2015)

DHS Chemical Facility Anti-Terrorism Standards (CFATS)

Chemical of Interest	CAS Number	RELEASE			THEFT			SABOTAGE		
		Min Conc	STQ	Security Issue	Min Conc	STQ	Security Issue	Min Conc	STQ	Security Issue
	7664-39-3	50.00 %	1000 pounds	toxic						

Chemical of Interest	CAS Number	RELEASE			THEFT			SABOTAGE		
		Min Conc	STQ	Security Issue	Min Conc	STQ	Security Issue	Min Conc	STQ	Security Issue
Hydrofluoric acid (conc. 50% or greater)										
Hydrogen fluoride (anhydrous)	7664-39-3	1.00 %	1000 pounds	toxic	42.53 %	45 pounds	WME			

WME = weapons of mass effect.

(DHS, 2007)

OSHA Process Safety Management (PSM) Standard List

Chemical Name	CAS Number	Threshold Quantity (TQ)
Hydrofluoric Acid, Anhydrous	7664-39-3	1000 pounds
Hydrogen Fluoride	7664-39-3	1000 pounds

(OSHA, 2011)

Alternate Chemical Names

- ALSURF 45
- ANTISAL 2B
- AQUEOUS HYDROGEN FLUORIDE (I.E., HYDROFLUORIC ACID)
- FLUORHYDRIC ACID
- FLUORIC ACID
- FLUORINE HYDRIDE (FH)
- FLUORINE MONOHYDRIDE
- HF-A
- HYDROFLUORIC ACID
- HYDROFLUORIC ACID (CONC. 50% OR GREATER)
- HYDROFLUORIC ACID, SOLUTION
- HYDROGEN FLUORIDE (HF)
- HYDROGEN FLUORIDE (HYDROFLUORIC ACID)
- HYDROGEN MONOFLUORIDE



THE GENERAL DUTY CLAUSE

Under the Clean Air Act Section 112(r)(1), the General Duty Clause states: "The owners and operators of stationary sources producing, processing, handling or storing such substances [i.e., a chemical in 40 CFR part 68 or any other extremely hazardous substance] have a general duty [in the same manner and to the same extent as the general duty clause in the Occupational Safety and Health Act (OSHA)] to identify hazards which may result from (such) releases using appropriate hazard assessment techniques, to design and maintain a safe facility taking such steps as are necessary to prevent releases, and to minimize the consequences of accidental releases which do occur."

WHAT IS THE GENERAL DUTY CLAUSE?

In the Clean Air Act Amendments of 1990, Congress enacted Section 112(r)(1), also known as the General Duty Clause (GDC), which makes the owners and operators of facilities that have regulated and other extremely hazardous substances responsible for ensuring that their chemicals are managed safely.

Facilities have been required to comply with GDC since November 1990.

WHO IS COVERED?

The General Duty Clause applies to **any** stationary source producing, processing, handling, or storing regulated substances or other extremely hazardous substances. "Other extremely hazardous substances" are any chemicals listed in 40 CFR part 68, or any other chemicals, which may be considered extremely hazardous.

WHAT DOES THE GENERAL DUTY CLAUSE INVOLVE?

Facilities subject to the General Duty Clause are, among other things, responsible for the following:

- Knowing the hazards posed by the chemicals and assessing the impacts of possible releases,
- Designing and maintaining a safe facility to prevent accidental releases, and
- Minimizing the consequences of accidental releases that do occur.

WHAT IS THE CHEMICAL ACCIDENT PREVENTION PROGRAM?

Clean Air Act Section 112(r) also established the Chemical Accident Prevention Program dedicated to recognizing hazards and preventing accidents. It differs from the GDC in that it requires facilities that use listed toxic or flammable chemicals above certain thresholds to implement a specified set of accident prevention and emergency response program elements, and to submit a document called a risk management plan (RMP) to EPA. The RMP summarizes a regulated facility's hazard assessment, emergency response program, and accident prevention program information. Most of the information in a facility's RMP is also available to the public.

HOW DO I MEET MY GDC OBLIGATIONS?

It is important to understand that the General Duty Clause is not a regulation and compliance cannot be checked against a regulation or submission of data.

The General Duty Clause requires you to identify hazards your facility may present from accidental releases of hazardous substances, design and maintain a safe facility, and minimize the consequences of accidental releases which do occur. Generally, among other things, you should:

- (1) Adopt or follow any relevant industry codes, practices or consensus standards (for the process or facility as a whole as well as for particular chemicals or pieces of equipment),
- (2) Be aware of unique circumstances of your facility which may require a tailored accident prevention program, and
- (3) Be aware of accidents and other incidents in your industry that indicate potential hazards.

Examples

- A facility installed a water-based fire suppression system in storage areas that contained water-reactive chemicals. This created a clearly hazardous condition. The General Duty Clause required the facility to install a fire suppression system that was compatible with water reactive chemicals.
- Preventing and mitigating accidental releases related to known equipment failure scenarios is a GDC obligation.

Answers to Your Questions

I don't have to submit an RMP because I lowered my thresholds – and I believe that I lowered my risk. Am I still subject to the General Duty Clause?

- Yes. If you use a regulated substance or any other extremely hazardous substance in any amount you are subject to the GDC.

How can I find out what GDC inspectors are looking for at my facility?

- Read the *Guidance for Implementation of the General Duty Clause Clean Air Act Section 112(r)(1)* at: <http://www.epa.gov/oem/docs/chem/gdcregionalguidance.pdf>.

How can I find out about accidents and recognized hazards in my industry sector?

- Your trade association is a good place to start. OSHA and the Chemical Safety & Hazard Investigation Board periodically issue hazard bulletins and accident investigation reports. EPA also issues Chemical Safety Alerts and Enforcement Alerts on recognized hazards. EPA's Emergency Response Notification System (ERNS) is a useful first stop for tracking accidents.

How has OSHA's GDC been applied?

- Similar to the GDC of the Clean Air Act, OSHA's GDC applies when: (a) an employer fails to render a workplace free of hazard; (b) the hazard is recognized either by the employer or generally within the employer's industry; (c) the hazard causes or is likely to cause death or serious harm; and (d) there are feasible means by which the employer can eliminate or materially reduce the hazard.

What are the penalties for non-compliance with the GDC?

- The Clean Air Act Section 113(b) allows EPA to assess penalties of up to \$37,500 per day for each violation.

HOW DO I FIND MORE INFORMATION ON THE GENERAL DUTY CLAUSE, CHEMICAL SAFETY ALERTS, OR THE RISK MANAGEMENT PROGRAM?

RCRA, Superfund & EPCRA Information Center ("Call Center"):

Monday – Thursday, 10:00 a.m. – 3:00 p.m. EST
Extended Hours of Operation (May, June, and July):
Monday – Friday, 9:00 a.m. – 5:00 p.m. EST

800-424-9346 or TDD 800-553-7672
703-412-9810 or TDD 703-412-3323 (Metropolitan DC area callers please use this number)

Or see Web site at: http://www.epa.gov/emergencies/contact_us.htm#InfoCenter

Chemical Accident Prevention Program and RMPs:

<http://www.epa.gov/emergencies/content/rmp/index.htm>

The Emergency Planning and Community Right-to-Know Act

On December 4, 1984, methyl isocyanate, an extremely toxic chemical escaped from a Union Carbide chemical plant in Bhopal, India. Thousands died and many more were injured. Some suffered permanent disabilities. Approximately six months later, a similar incident occurred at the Institute, West Virginia. These two events raised concern about local preparedness for chemical emergencies and the availability of information on hazardous chemicals.

In response to these concerns, Congress passed the Emergency Planning and Community Right-to-Know Act (EPCRA) in 1986. EPCRA establishes requirements for federal, state and local governments, Indian tribes, and industry regarding emergency planning and "Community Right-to-Know" reporting on hazardous and toxic chemicals. The Community Right-to-Know provisions help increase public's knowledge and access to information on chemicals at individual facilities, their uses, and releases into the environment. States and communities, working with facilities, can use the information to improve chemical safety and protect public health and the environment.

What Are SERCs, TERCS, and LEPCs?

The Governor of each state designated a State Emergency Response Commission (SERC). The SERCs, in turn, designated about 3,500 local emergency planning districts and appointed Local Emergency Planning Committees (LEPCs) for each district. The SERC supervises and coordinates the activities of the LEPC, establishes procedures for receiving and processing public requests for information collected under EPCRA, and reviews local emergency response plans.

The Chief Executive Office of the Tribe appoints the Tribal Emergency Response Commissions (TERCs). TERCs have the same responsibilities as the SERCs.

The LEPC membership must include, at a minimum, local officials including police, fire, civil defense, public health, transportation, and environmental professionals, as well as representatives of facilities subject to the emergency planning requirements, community groups, and the media. The LEPCs must develop an emergency response plan, review it at least annually, and provide information about chemicals in the community to citizens.

What Does EPCRA Cover?

EPCRA has four major provisions:

- Emergency planning (sections 301-303),
- Emergency release notification (section 304),
- Hazardous chemical storage reporting requirements (sections 311-312), and
- Toxic chemical release inventory (section 313).

Information collected from these four requirements helps states and communities develop a broad perspective of chemical hazards for the entire community, as well as for individual

facilities. Regulations implementing EPCRA are codified in Title 40 of the Code of Federal Regulations, parts 350 to 372. The chemicals covered by each of the sections are different, as are the quantities that trigger reporting. Table 1 summarizes the chemicals and thresholds.

What Are Emergency Response Plans (Sections 301-303)?

Emergency Response plans contain information that community officials can use at the time of a chemical accident. Community emergency response plans for chemical accidents were developed under section 303. LEPCs are required to update these plans annually. The plans must:

- Identify facilities and transportation routes of extremely hazardous substances;
- Describe emergency response procedures, on and off site;
- Designate a community coordinator and facility coordinator(s) to implement the plan;
- Outline emergency notification procedures;
- Describe how to determine the probable affected area and population by releases;
- Describe local emergency equipment and facilities and the persons responsible for them;
- Outline evacuation plans;
- Provide a training program for emergency responders (including schedules); and,
- Provide methods and schedules for exercising emergency response plans.

Planning activities of LEPCs and facilities initially focused on, but were not limited to, the 406 extremely hazardous substances (EHSs) listed by EPA in 1987 (now currently 355 chemicals). The list includes the threshold planning quantities (minimum limits) for each substance. Any facility that has EHS at or above its threshold planning quantity must notify the State Emergency Response Commission (SERC) or the Tribal Emergency Response Commission (TERC) and Local Emergency Planning Committee (LEPC) within 60 days after they first receive a shipment or produce the substance on site.

What Are the Emergency Notification Requirements (Section 304)?

Facilities must immediately notify the LEPC and the SERC or the TERC if there is a release into the environment of a hazardous substance that is equal to or exceeds the minimum reportable quantity set in the regulations. This requirement covers the 355 extremely hazardous substances, as well as the more than 700 hazardous substances subject to the emergency notification requirements under CERCLA section 103(a)(40 CFR 302.4). Some chemicals are common to both lists. Initial notification can be made by telephone, radio, or in person. Emergency notification requirements involving transportation incidents can be met by dialing 911, or in the absence of a 911 emergency number, calling the operator. This emergency notification needs to include:

- The chemical name;
- An indication of whether it is an extremely hazardous substance;
- An estimate of the quantity released into the environment;
- The time and duration of the release;
- Whether the release occurred into air, water, and/or land;
- Any known or anticipated acute or chronic health risks associated with the emergency, and where necessary, advice regarding medical attention for exposed individuals;
- Proper precautions, such as evacuation or sheltering in place; and,
- Name and telephone number of contact person.

A written follow-up notice must be submitted to the SERC or the TERC and LEPC as soon as practicable after the release. The follow-up notice must update information included in the initial notice and provide information on actual response actions taken and advice regarding medical attention necessary for citizens exposed.

What Are the Community Right-to-know Requirements (Sections 311 and 312)?

Under Occupational Safety and Health Administration (OSHA) regulations, employers must maintain a material safety data sheet (MSDS) for any hazardous chemicals stored or used in the work place. Approximately 500,000 products are required to have MSDSs.

Section 311 requires facilities that have MSDSs for chemicals held above certain threshold quantities to submit either copies of their MSDSs or a list of these chemicals to the SERC or TERC, LEPC, and local fire department. If the facility owner or operator chooses to submit a list of chemicals, the list must include the chemical or common name of each substance and must identify the applicable hazard categories. These hazard categories are:

Physical Hazards	Health Hazards
Flammable (gases, aerosols, liquids, or solids)	Carcinogenicity
Gas under pressure	Acute toxicity (any route of exposure)
Explosive	Reproductive toxicity
Self-heating	Skin Corrosion or Irritation
Pyrophoric (liquid or solid)	Respiratory or Skin Sensitization
Oxidizer (liquid, solid, or gas)	Serious eye damage or eye irritation
Organic peroxide	Specific target organ toxicity (single or repeated exposure)
Self-reactive	Germ cell mutagenicity
In contact with water emits flammable gas	Aspiration Hazard
Corrosive to metal	Hazard Not Otherwise Classified (HNOC)
Hazard Not Otherwise Classified (HNOC)	

If a list is submitted, the facility must submit a copy of the MSDSs for any chemical on the list upon request by the LEPC.

Facilities that start using a hazardous chemical or increase the quantity to exceed the thresholds must submit MSDSs or a list of MSDSs chemicals within three months after they become covered. Facilities must provide a revised MSDS to update the original MSDS or list if significant new information is discovered about the hazardous chemical.

Facilities covered by section 311 must submit annually an Emergency and Hazardous Chemical Inventory Form to the LEPC, the SERC or the TERC, and the local fire department as required under section 312. Facilities provide either a Tier I or Tier II inventory form. Tier I inventory form include the following aggregate information for each applicable hazard category:

- An estimate (in ranges) of the maximum amount of hazardous chemicals for each category present at the facility at any time during the preceding calendar year;
- An estimate (in ranges) of the average daily amount of hazardous chemicals in each category; and,

- The general location of hazardous chemicals in each category. The Tier II inventory form contains basically the same information as the Tier I, but it must list the specific chemicals. Tier II inventory form provide the following information for each chemical:
- The chemical name or the common name as indicated on the MSDS;
- An estimate (in ranges) of the maximum amount of the chemical present at any time during the preceding calendar year and the average daily amount;
- A brief description of the manner of storage of the chemical;
- The location of the chemical at the facility; and
- An indication of whether the owner elects to withhold location information from disclosure to the public.

Many states now require Tier II inventory form or the state equivalent including electronic reporting under state law. Section 312 information must be submitted on or before March 1 each year for information on chemicals present at the facility in the previous year. The information submitted under sections 311 and 312 is available to the public from LEPCs and SERCs or TERCs.

What is the Toxics Release Inventory (Section 313)?

Section 313 of EPCRA established the Toxics Release Inventory. TRI tracks the management of certain toxic chemicals that pose a threat to human health and the environment. Facilities in different industry sectors must annually report how much of each chemical they managed through recycling, energy recovery, treatment and environmental releases. TRI reporting forms must be submitted to EPA and the appropriate state or tribe by July 1 of each year. These forms cover environmental releases and other management of toxic chemicals that occurred during the previous calendar year.

The information submitted by facilities is compiled in the Toxics Release Inventory and made available to the public through the TRI website: <https://www.epa.gov/toxics-release-inventory-tri-program>. TRI helps support informed decision-making by industry, government, non-governmental organizations and the public. TRI includes information about:

- On-site releases (including disposal) of toxic chemicals to air, surface water and land;
- On-site recycling, treatment and energy recovery associated with TRI chemicals;
- Off-site transfers of toxic chemicals from TRI facilities to other locations;
- Pollution prevention activities at facilities;
- Releases of lead, mercury, dioxin and other persistent, bioaccumulative and toxic (PBT) chemicals; and
- Facilities in a variety of industry sectors (including manufacturing, metal mining and electric power generation) and some federal facilities.

A complete list of covered facility sectors is available online: <https://www.epa.gov/toxics-release-inventory-tri-program/my-facilitys-six-digit-code-tri-covered-industry>

Some of the ways TRI data can be used include:

- Identifying sources of toxic chemical releases;
- Beginning to analyze potential toxic chemical hazards to human health and the environment; and
- Encouraging pollution prevention at facilities.

Table 1: EPCRA Chemicals and Reporting Thresholds

Chemicals Covered	Section 302	Section 304	Sections 311/312	Section 313
	355 Extremely Hazardous Substances	>1,000 substances	Approximately 800,000 hazardous chemicals	> 650 Toxic Chemicals and categories
Thresholds	Threshold Planning Quantity 1-10,000 pounds on site at any one time	Reportable quantity, 1-5,000 pounds, released in a 24-hour period	500 pounds or TPQ whichever is less for EHSs; gasoline greater than or equal to 75,000 gallons (all grades combined)*; diesel greater than or equal to 100,000 gallons (all grades combined)*; 10,000 pounds for all other hazardous chemicals	25,000 pounds per year manufactured or processed; 10,000 pounds a year otherwise used; persistent bioaccumulative toxics have lower thresholds

*These thresholds are only applicable for gasoline and diesel present at retail gas stations in tank(s) entirely underground and was in compliance at all times during the preceding calendar year with all applicable Underground Storage Tank (UST) requirements at 40 CFR part 280 or requirements of the state UST program approved by the Agency under 40 CFR part 281.

What Else Does EPCRA Require?

Trade Secrets. EPCRA section 322 allows facilities to file trade secrets in their reports under EPCRA sections 303, 311, 312, and 313. Only the specific chemical identity may be claimed as a trade secret, though a generic class for the chemical must be provided. The criteria a facility must meet to claim a chemical identity as a trade secret are in 40 CFR part 350. A facility cannot claim trade secrets under EPCRA section 304.

Even if specific chemical identity information can be legally withheld from the public, EPCRA section 323 allows the information to be disclosed to health professionals who need the information for diagnostic and treatment purposes or local health officials who need the information for prevention and treatment. In non-emergency cases, the health professional must sign a confidentiality agreement with the facility and provide a written statement of need. During a medical emergency, the health professional may obtain the specific chemical identity from the facility for treatment.

Any person may challenge trade secret claims by petitioning EPA. The Agency must then review the claim and rule on its validity.

EPCRA Penalties. EPCRA section 325 allows for civil and administrative penalties ranging from up to \$21,916 - \$164,367¹ per violation per day when facilities fail to comply with the reporting requirements. Criminal penalties up to \$50,000 or five years in prison apply to any person who knowingly and willfully fails to provide emergency release notification. Penalties of not more than \$20,000 and/or up to one year in prison apply to any person who knowingly and willfully discloses any information entitled to protection as a trade secret.

Citizens Suits. EPCRA section 326 allows citizens to initiate civil actions against EPA, SERCs, and the owner or operator of a facility for failure to meet the EPCRA requirements. A SERC or TERC, LEPC, and state or local government may institute actions against facility owner or operator for failure to comply with EPCRA requirements. In addition, states may sue EPA for failure to provide trade secret information.

Reporting Schedules Section

- 302** One-time notification to SERC/TERC and LEPC.
- 304** Each time a release above a reportable quantity of an EHS or CERCLA Hazardous Substance occurs to LEPC and SERC or TERC.
- 311** One-time submission of MSDS or list of hazardous chemicals. An update is required for new chemicals or new information about chemicals already submitted to the SERC or TERC, LEPC, and the fire department with jurisdiction over the facility.
- 312** Annually, by March 1 to SERC or TERC, LEPC, and the fire department with jurisdiction over the facility.
- 313** Annually, by July 1, to EPA, states and tribes.

Where Can You Find EPCRA Information?

Regulations, policy memorandums, answers to frequently asked questions related to EPCRA sections 301 to 312 can be obtained from: <https://www.epa.gov/epcra>
MSDSs, hazardous chemical inventory forms, follow-up emergency notices, and the emergency response plan are available from the SERC or the TERC and LEPC.

EPA has compiled a list of all chemicals covered under these regulations into a single list and published them as Consolidated List of Lists, which is available at: <https://www.epa.gov/epcra/epcracerclacaa-ss112r-consolidated-list-lists-march-2015-version>

Each year, EPA publishes the TRI National Analysis, a report summarizing the most recent TRI data. TRI data are available through a variety of online tools and applications at <https://www.epa.gov/toxics-release-inventory-tri-program/tri-data-and-tools>. Users can search TRI data by year, facility name, geographic location, chemical of interest and industry sector.

¹ The penalty amounts described have been adjusted by the 2017 Civil Monetary Penalty Inflation Adjustment Rule, mandated by the 2015 amendments to the Federal Civil Penalty Inflation Adjustment Act, 28 U.S.C. § 2461 note, Pub. L. 114-74 (see <https://www.congress.gov/114/plaws/publ74/PLAW-114publ74.pdf>). See also 81 Fed. Reg. 43,091 (July 1, 2016).

Initial emergency release notifications made to the National Response Center or EPA are available online: <http://nrc.uscg.mil>

A list of SERCs is available online: <https://www.epa.gov/epcra/state-emergency-response-commissions-contacts>

For information on chemical emergency preparedness and prevention in Indian country, visit: <https://www.epa.gov/rmp/chemical-emergency-preparedness-and-prevention-indian-country>

Are There Other Laws That Provide Similar Information?

The Oil Pollution Act (OPA) of 1990 includes national planning and preparedness provisions for oil spills that are similar to EPCRA provisions for extremely hazardous substances. Plans are developed at the local, state and federal levels. The OPA plans offer an opportunity for LEPCs to coordinate their plans with area and facility oil spill plans covering the same geographical area.

The 1990 Clean Air Act Amendments require the EPA and OSHA to issue regulations for chemical accident prevention. Facilities that have certain chemicals above specified threshold quantities are required to develop a risk management program to identify and evaluate hazards and manage those hazards safely. Facilities subject to EPA's Chemical Accident Prevention regulations must submit a risk management plan (RMP) summarizing its program.

For More Information

Contact the EPCRA, RMP & Oil Information Center: 800-424-9346 or
703-348-5070 in the Metropolitan DC area
Monday - Friday, 10:00 AM to 5:00 PM, EST

For EPA EPCRA Regional contacts, visit: <https://www.epa.gov/epcra/epa-regional-epcramrp-contacts>

For more information about the TRI Program, visit: <https://www.epa.gov/toxics-release-inventory-tri-program>

U.S. EPA Small Business Resources Information Sheet

The United States Environmental Protection Agency provides an array of resources to help small businesses understand and comply with federal and state environmental laws. In addition to helping small businesses understand their environmental obligations and improve compliance, these resources will also help such businesses find cost-effective ways to comply through pollution prevention techniques and innovative technologies.

Office of Small and Disadvantaged Business Utilization (OSDBU)

www.epa.gov/aboutepa/about-office-small-and-disadvantaged-business-utilization-osdbu

EPA's OSDBU advocates and advances business, regulatory, and environmental compliance concerns of small and socio-economically disadvantaged businesses.

EPA's Asbestos Small Business Ombudsman (ASBO)

www.epa.gov/resources-small-businesses/asbestos-small-business-ombudsman or 1-800-368-5888

The EPA ASBO serves as a conduit for small businesses to access EPA and facilitates communications between the small business community and the Agency.

Small Business Environmental Assistance Program

<https://nationalsbeap.org>

This program provides a "one-stop shop" for small businesses and assistance providers seeking information on a wide range of environmental topics and state-specific environmental compliance assistance resources.

EPA's Compliance Assistance Homepage

www.epa.gov/compliance

This page is a gateway to industry and statute-specific environmental resources, from extensive web-based information to hotlines and compliance assistance specialists.

Compliance Assistance Centers

www.complianceassistance.net

EPA sponsored Compliance Assistance Centers provide information targeted to industries with many small businesses. They were developed in partnership with industry, universities and other federal and state agencies.

Agriculture

www.epa.gov/agriculture

Automotive Recycling

www.ecarcenter.org

Automotive Service and Repair

www.ccar-greenlink.org or 1-888-GRN-LINK

Chemical Manufacturing

www.chemalliance.org

Construction

www.cicacenter.org

Education

www.campuserc.org

Food Processing

www.fpeac.org

Healthcare

www.hercenter.org

Local Government

www.lgean.org

Surface Finishing

<http://www.sterc.org>

Paints and Coatings

www.paintcenter.org

Printing

www.pneac.org

Ports

www.portcompliance.org

Transportation

www.tercenter.org

U.S. Border Compliance and Import/Export Issues

www.bordercenter.org

EPA Hotlines and Clearinghouses

www.epa.gov/home/epa-hotlines

EPA sponsors many free hotlines and clearinghouses that provide convenient assistance regarding environmental requirements. Examples include:

Clean Air Technology Center (CATC) Info-line

www.epa.gov/catc or 1-919-541-0800

Superfund, TRI, EPCRA, RMP, and Oil Information Center

1-800-424-9346

EPA Imported Vehicles and Engines Public Helpline

www.epa.gov/otag/imports or 1-734-214-4100

National Pesticide Information Center

www.npic.orst.edu or 1-800-858-7378

National Response Center Hotline to report oil and hazardous substance spills - <http://nrc.uscg.mil> or 1-800-424-8802

Pollution Prevention Information Clearinghouse (PPIC) -

www.epa.gov/p2/pollution-prevention-resources#ppic or 1-202-566-0799

Safe Drinking Water Hotline -

www.epa.gov/ground-water-and-drinking-water/safe-drinking-water-hotline or 1-800-426-4791

Toxic Substances Control Act (TSCA) Hotline

tsc hotline@epa.gov or 1-202-554-1404

Small Entity Compliance Guides

<https://www.epa.gov/reg-flex/small-entity-compliance-guides>

EPA publishes a Small Entity Compliance Guide (SECG) for every rule for which the Agency has prepared a final regulatory flexibility analysis, in accordance with Section 504 of the Regulatory Flexibility Act (RFA).

Regional Small Business Liaisons

www.epa.gov/resources-small-businesses/epa-regional-office-small-business-liaisons

The U.S. Environmental Protection Agency (EPA) Regional Small Business Liaison (RSBL) is the primary regional contact and often the expert on small business assistance, advocacy, and outreach. The RSBL is the regional voice for the EPA Asbestos and Small Business Ombudsman (ASBO).

State Resource Locators

www.envcap.org/statetools

The Locators provide state-specific contacts, regulations and resources covering the major environmental laws.

State Small Business Environmental Assistance Programs (SBEAPs)

<https://nationalsbeap.org/states/list>

State SBEAPs help small businesses and assistance providers understand environmental requirements and sustainable business practices through workshops, trainings and site visits.

EPA's Tribal Portal

www.epa.gov/tribalportal

The Portal helps users locate tribal-related information within EPA and other federal agencies.

EPA Compliance Incentives

EPA provides incentives for environmental compliance. By participating in compliance assistance programs or voluntarily disclosing and promptly correcting violations before an enforcement action has been initiated, businesses may be eligible for penalty waivers or reductions. EPA has two such policies that may apply to small businesses:

EPA's Small Business Compliance Policy

www.epa.gov/enforcement/small-businesses-and-enforcement

EPA's Audit Policy

www.epa.gov/compliance/epas-audit-policy

Commenting on Federal Enforcement Actions and Compliance Activities

The Small Business Regulatory Enforcement Fairness Act (SBREFA) established a SBREFA Ombudsman and 10 Regional Fairness Boards to receive comments from small businesses about federal agency enforcement actions. If you believe that you fall within the Small Business Administration's definition of a small business (based on your North American Industry Classification System designation, number of employees or annual receipts, as defined at 13 C.F.R. 121.201; in most cases, this means a business with 500 or fewer employees), and wish to comment on federal enforcement and compliance activities, call the SBREFA Ombudsman's toll-free number at 1-888-REG-FAIR (1-888-734-3247).

Every small business that is the subject of an enforcement or compliance action is entitled to comment on the Agency's actions without fear of retaliation. EPA employees are prohibited from using enforcement or any other means of retaliation against any member of the regulated community in response to comments made under SBREFA.

Your Duty to Comply

If you receive compliance assistance or submit a comment to the SBREFA Ombudsman or Regional Fairness Boards, you still have the duty to comply with the law, including providing timely responses to EPA information requests, administrative or civil complaints, other enforcement actions or communications. The assistance information and comment processes do not give you any new rights or defenses in any enforcement action. These processes also do not affect EPA's obligation to protect public health or the environment under any of the environmental statutes it enforces, including the right to take emergency remedial or emergency response actions when appropriate. Those decisions will be based on the facts in each situation. The SBREFA Ombudsman and Fairness Boards do not participate in resolving EPA's enforcement actions. Also, remember that to preserve your rights, you need to comply with all rules governing the enforcement process.

EPA is disseminating this information to you without making a determination that your business or organization is a small business as defined by Section 222 of the Small Business Regulatory Enforcement Fairness Act or related provisions.